

memorandum

DATE: September 13, 1983

REPLY TO
ATTN OF: Refuge Manager, Holla Bend NWR

SUBJECT: Wildlife Inventory Plans

TO: Migratory Bird Field Coordinator, Memphis, TN
ATTN: Don Orr

Enclosed is a copy of the Wildlife Inventory Plan for Holla Bend.
All inventories in this plan are being used in their present form.

Cecil E. McMullan
Refuge Manager

TAF/js

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GSA FPMR (41 CFR) 101-11.6
5010-112

WILDLIFE INVENTORY PLAN

HOLLA BEND NATIONAL WILDLIFE REFUGE

I.

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REFUGE OBJECTIVES

Holla Bend National Wildlife Refuge has four objectives all of which depend upon accurate and timely wildlife inventory data.

The refuge's primary objective is to provide wintering habitat for migratory waterfowl. This objective is attained through a farming program on 2,400 acres of refuge land. Food provided by the farming operation and the sanctuary of the refuge provide wintering habitat for up to 60,000 ducks and 15,000 geese.

The refuge's second objective is to provide habitat and protection for endangered species. A small resident population of American Alligators was established on the refuge in 1979. Migratory Bald Eagles use the refuge for five months of the year starting in November.

The refuge's third objective is to provide habitat and protection for all species of resident wildlife and non-game migratory birds.

The refuge's fourth objective is to provide interpretation and recreation for the visiting public. Refuge hunting programs are the primary reason accurate inventory procedures of our game species are necessary.

POLICY ON WILDLIFE INVENTORY PROCEDURES

It is the policy of Holla Bend National Wildlife Refuge that no wildlife species is too insignificant not to merit inventory. However due to available staff time and budget constraints only those species of major concern to refuge objectives will have specific inventory procedures developed for them. This is not to say that those species not specifically mentioned will be ignored. On the contrary, it is the duty of all refuge personnel to be constantly observant and alert to their surroundings. Much valuable insight and information can be gained by observing general trends in wildlife populations. It is especially important that all wildlife species be monitored for any significant disease problems. This general type of observation/inventory can be easily carried out during normal duty operations, as well as, during established inventory operations.

Refuge: Holla Bend NWR

Procedure No.: 1

Species: Waterfowl

Title: Wintering Waterfowl Population Survey

I. Purpose

Wintering waterfowl numbers provide us with an indication as to what degree we are meeting our primary objective. It is therefore necessary to take a regular and accurate census of the ducks and geese using the refuge. This information is used to evaluate refuge farming program needs, for monthly waterfowl reports, for special reports such as the mid-winter waterfowl survey, the November white-front and snow goose survey, and the mid-winter goose survey.

II. Procedure

Weekly waterfowl counts will be taken from October through March. Waterfowl on Holla Bend feed, for the most part, in cut corn fields and can be easily counted as they fly in to feed. This feeding pattern changes depending on what corn field has been most recently cut; therefore setting up a regular census route would be impractical. Those areas currently being used by waterfowl can be easily discerned on the day of the census.

The waterfowl census technique will involve observing and counting birds entering the refuge to feed in the morning and evening on Monday of each week during the survey period. Morning and evening counts will be averaged to give a weekly census total. Should weather conditions not allow a Monday census, it will be carried out on the first day weather allows.

The census will be carried out by the assistant refuge manager throughout the entire census period to insure continuity. Refuge roads, as shown on Map # 1, are passable in all weather conditions and allow access to all areas of the refuge used by waterfowl.

All census data will be recorded on a weekly waterfowl census sheet (exhibit # 1) and kept on file in the refuge office.

III. Special Considerations

Waterfowl feeding patterns on Holla Bend are such that the vast majority of waterfowl using the refuge can be observed feeding in dry fields. Should there be a drastic change in this pattern an alternate census method will have to be developed.

IV. Manpower and Costs

Manpower and costs for this inventory are as follows:

Fieldwork: 10 man-days @ \$77.92 (GS-9) = \$779.20

Equipment: Vehicles - pick-up truck @
10 miles/day for 10 days = 25.00

Materials: Paper, pencils, etc. = 5.00

Total cost \$887.12

Prepared by: Acil G. Mullan Date: 8-23-83

Reviewed by: _____ Date: _____

Approved by: _____ Date: _____

OBSERVER: _____

Evening

Weather conditions: _____

Remarks:

SPECIES	NUMBER	SPECIES	NUMBER	EAGLES
TOTAL GEESE		TOTAL GEESE		
TOTAL DUCKS		TOTAL DUCKS		
		AVERAGE TOTAL GEESE		
		AVERAGE TOTAL DUCKS		

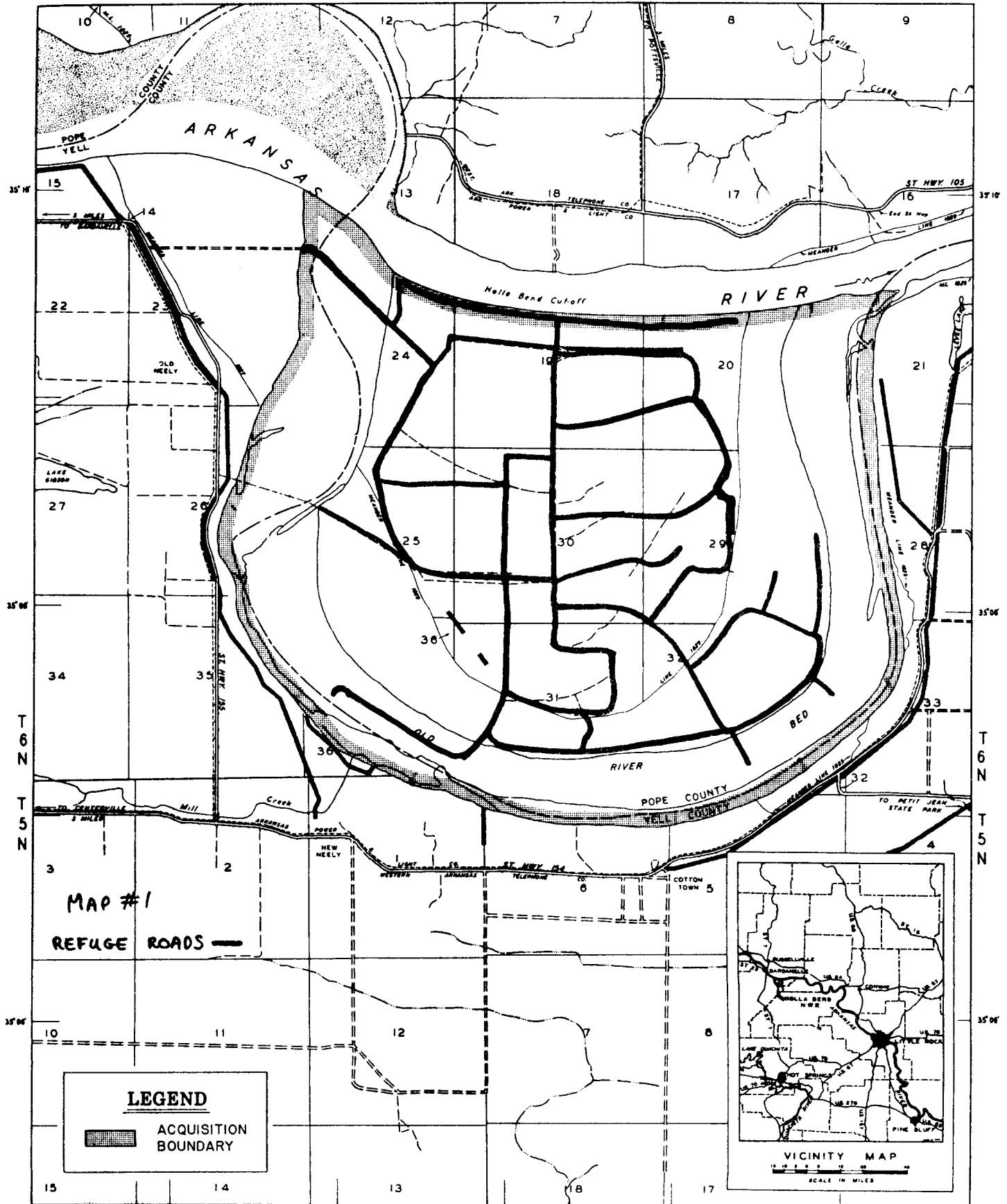
HOLLA BEND NATIONAL WILDLIFE REFUGE

UNITED STATES
DEPARTMENT OF THE INTERIOR
95°06'

POPE AND YELL COUNTIES, ARKANSAS

UNITED STATES
FISH AND WILDLIFE SERVICE
95°02'

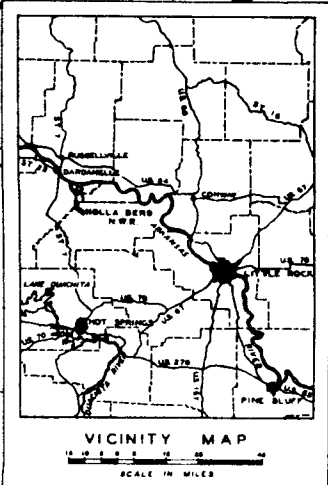
R 20 W R 19 W



MAP #1
REFUGE ROADS —

LEGEND

ACQUISITION BOUNDARY



COMPILED IN THE DIVISION OF REALTY
FROM SURVEYS BY G.L.O., CORPS OF
ENGINEERS, AND AERIAL PHOTOS

ATLANTA, GEORGIA DECEMBER, 1967

Scale 0 2000 4000 6000 8000 FEET
0 1/4 1/2 MILE

FIFTH PRINCIPAL MERIDIAN

TRUE NORTH
MAGNETIC N
MEAN DECLINATION
1953

Refuge: Holla Bend NWR

Procedure No.: 2

Species: Bald Eagle

Title: Wintering Eagle Survey

I. Purpose

Providing habitat and sanctuary for endangered species is the refuge's second objective. Wintering Bald Eagles use the refuge from November through March. This is a species of national significance; therefore its numbers on the refuge need to be monitored accurately.

II. Procedure

Eagles will be censused in conjunction with the weekly waterfowl survey. All suitable eagle roosting habitat on the refuge can be observed from refuge roads. These roads will be traveled to locate waterfowl feeding areas. Thus eagles will be observed while conducting the waterfowl census.

A space has been allotted on the weekly waterfowl census form to record eagle sightings. (exhibit # 1)

III. Special Considerations

There are several factors which make eagles an easily observed species on Holla Bend. Wintering eagles on the refuge roost in solitary trees in and around farm fields as well as on the river front. All of these areas are easily observed from refuge roads. Eagle feeding patterns on the refuge draw the birds to large waterfowl concentrations as well as to the riverfront, again to areas where they are readily observed. Due to these factors it is possible to count a high percentage, if not all eagles, using the refuge on any particular date.

IV. Manpower and Costs

Done in conjunction with waterfowl census.

Prepared by: Cecil G. Muller Date: 8-23-83

Reviewed by: _____ Date: _____

Approved by: _____ Date: _____

Refuge: Holla Bend NWR

Procedure No.: 3

Species: Alligator

Title: Alligator Survey

I. Purpose

Providing habitat and sanctuary for endangered species is the refuge's second objective. The American Alligator was released on Holla Bend in 1979. Alligators were released on the refuge in an effort to establish them in what is suspected to be their historical range. Census of this species over several years will either prove or disprove this theory. Information from this survey will also be used to report the annual cooperative alligator survey.

II. Procedure

Alligators will be censused once a year to determine their numbers and distribution. The census will be taken during the dark of the moon in July or August depending on the water conditions.

The census will consist of following an established route through Lodge, Long and Luther lakes as outlined on Map # 2. A high intensity light (Q-Beam) will be used to scan the water's surface as the boat follows the route. The count will be taken only in one direction of travel to avoid duplicate counts. Since alligator eyes reflect red from a light, they are easily distinguished from aquatic mammals. Once an alligator has been located, an attempt will be made to get close enough to determine its size. Size and location data will be recorded and transferred to the Cooperative Alligator Survey form for mailing to the survey coordinator and filing.

III. Special Considerations

The alligator population on Holla Bend has been declining from the initial stocking of 12 in 1979. The count in 1982 was only 4. Although reproduction has taken place, it appears that cold weather may be the limiting factor for alligators on Holla Bend.

IV. Manpower and Costs

Manpower and costs for this inventory are as follows:

Fieldwork:	1 man-day @ \$77.92 (GS-9) =	\$ 77.92
	1 man-day @ \$54.72 (WG-5) =	54.72
Equipment:	Vehicles - pick-up truck,	
	2 miles @ .25/mile =	.50
	- John boat with	
	10HP outboard =	10.00

Total Cost \$143.16

Prepared by: Cecil G. Muller Date: 8-25-83

Reviewed by: _____ Date: _____

Approved by: _____ Date: _____

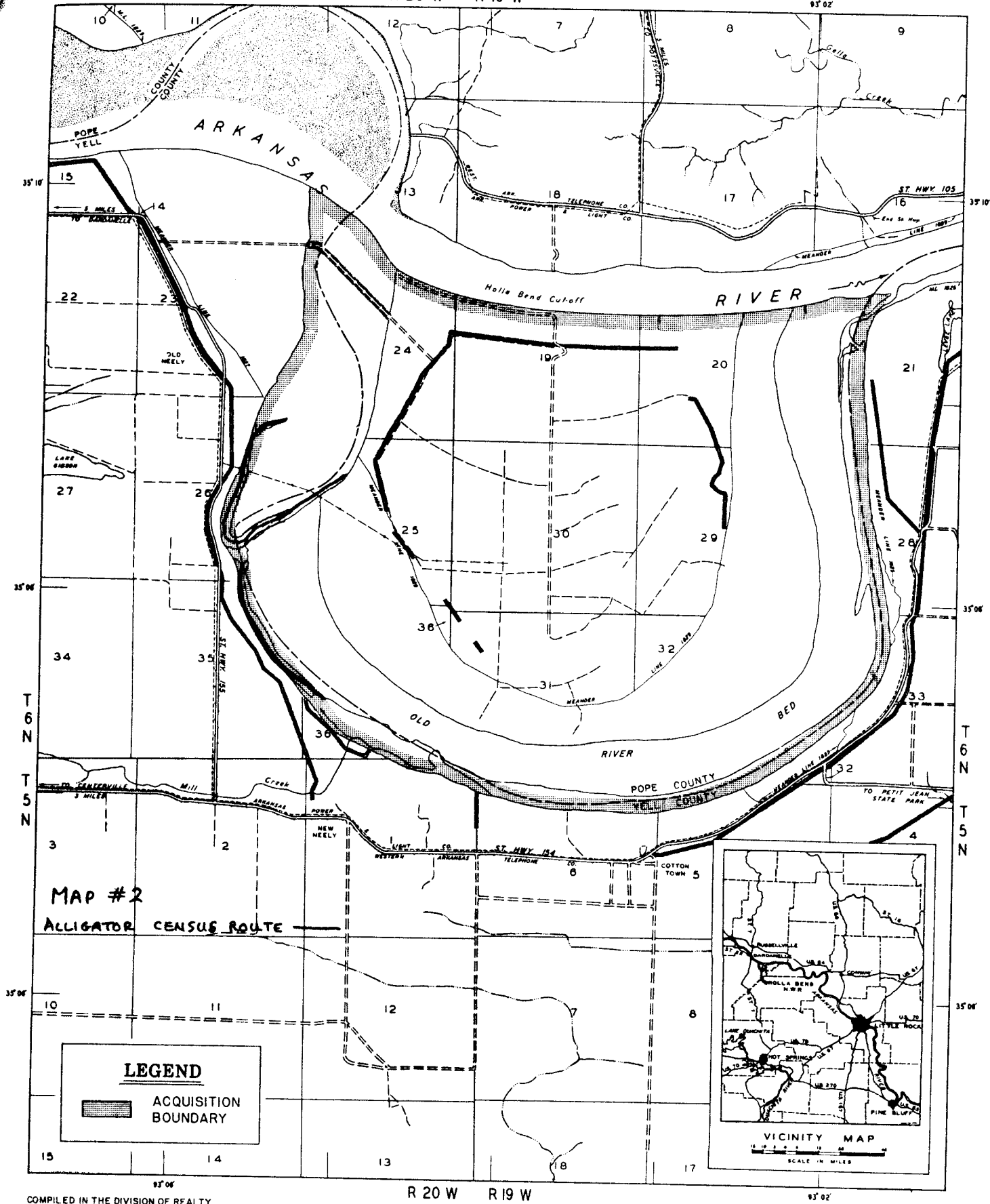
HOLLA BEND NATIONAL WILDLIFE REFUGE

UNITED STATES
DEPARTMENT OF THE INTERIOR
93° 06'

POPE AND YELL COUNTIES, ARKANSAS

R 20 W R 19 W

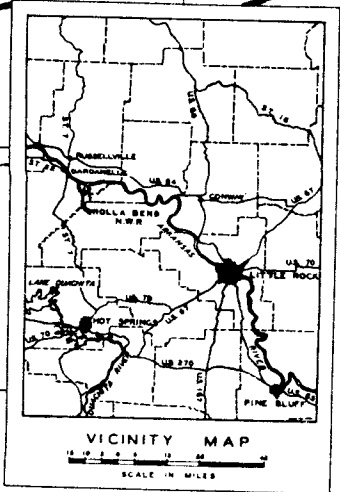
UNITED STATES
FISH AND WILDLIFE SERVICE
93° 02'



MAP #2
ALLIGATOR CENSUS ROUTE

LEGEND

ACQUISITION BOUNDARY



COMPILED IN THE DIVISION OF REALTY
FROM SURVEYS BY G.L.O., CORPS OF
ENGINEERS, AND AERIAL PHOTOS

ATLANTA, GEORGIA DECEMBER, 1967

FIFTH PRINCIPAL MERIDIAN

Scale 0 2000 4000 6000 8000 FEET
0 1/4 1/2 1 MILE

TRUE NORTH
MAGNETIC N. 7° 30'
MEAN DECLINATION
1953

4R ARK 498 40

Refuge: Holla Bend NWR

Procedure No.: 4

Species: White-Tailed Deer

Title: Deer Population Estimate

I. Purpose

White-tailed deer is a species that is hunted on the refuge. Due to the potential for controversy which seems to come with deer hunting these days and the vested interest inherent to deer hunters, it is important to insure the deer herd is managed according to sound wildlife management practices. It therefore becomes necessary to obtain the most accurate population estimate possible.

II. Procedure

Two methods will be used for estimating the deer population.

The first and primary method is an estimate based on the Percent Kill during the refuge deer hunt. This method is based on the rule-of-thumb that when either-sex hunting prevails the total kill is multiplied by 5 to acquire the total herd estimate (Lewis and Safley, 1967).

This method is not highly accurate where diverse condition of topography and hunting pressure can cause herd vulnerability to vary considerably. However the uniformity of the topography of Holla Bend and the even hunter distribution lends itself well to the idea that all deer on the refuge are equally susceptible to being harvested.

The second method is an estimate based on the number of deer harvested and age structure (Lewis and Safley, 1967). This method depends on accurate aging of deer harvested. Such data is not normally available due to our honor system self check-in deer registration station. If it is decided that the Percent Kill method is not providing accurate enough results, a concerted effort will have to be made to obtain age information.

Both of these methods were used to estimate the Holla Bend deer herd in 1980, when a coop student was available to age all deer harvested. The results were compatible to a 5% confidence level. We therefore feel the Percent Kill method will be adequate to our needs.

III. Special Considerations

As a supplement to this population estimate, the refuge deer herd will get a health check at least every five years. In 1982 a deer herd health check was made by the Southeastern Cooperative Wildlife Disease Study team. This study indicated that the refuge deer herd was below the carrying capacity of the refuge. The next deer herd health check should be made in 1987.

IV. Manpower and Costs

Manpower for this inventory is as follows:

Fieldwork: 1 man-day @ \$77.92 (GS-9) = \$77.92

Total Cost = \$77.92

V. Literature Cited

Lewis, J.C. and Safley, L.E. 1967.

A comparison of some deer census methods in Tennessee. Tenn. Game and Fish. (copy on file with refuge copy of inventory plan)

Prepared by: Cecil J. McMillon Date: 8-23-83

Reviewed by: _____ Date: _____

Approved by: _____ Date: _____

Refuge: Holla Bend NWR

Procedure No.: 5

Species: Small Game

Title: Small Game Survey

I. Purpose

Small game species included in this survey are raccoon, squirrel and rabbit. These species are currently hunted on the refuge; therefore they need to be censused.

II. Procedure

Due to the secretive and crepuscular nature of these small game species, accurate census methods are extremely time consuming and of questionable accuracy. For these reasons the census of small game species will consist of general observations and data returned from hunters. This information will be used to formulate population estimates needed for various reports.

III. Special Considerations

Perhaps the main reason for monitoring small game species is to insure overall health of the population. Over-population tends to lead to poor health, thus leading to drastic fluctuations in animal numbers. This type of situation is undesirable from the standpoint of sound wildlife management. Therefore small game animals will be monitored to detect any gross abnormalities or obvious disease signs within the population.

IV. Manpower and Costs

Observations used in this survey will be made during the course of normal work and while conducting other wildlife inventories.

Prepared by: Cecil J. McMillan Date: 8-23-83

Reviewed by: _____ Date: _____

Approved by: _____ Date: _____

Refuge: Holla Bend NWR

Procedure No.: 6

Species: Eastern Wild Turkey

Title: Turkey Survey

I. Purpose

Eastern wild turkey were introduced onto the refuge in 1977. Since that time the turkey population has increased to the point that turkey hunting and trapping, by the state for relocation, are now allowed. Because these activities are permitted on the refuge, it is necessary to establish that the turkey population is adequate to sustain these activities.

II. Procedures

Obtaining an estimate of the turkey population will be based on three sources of data. The first source will be hunt data, the second source will be general observations and the third source will be turkey counts on baited trapping sites.

Kill data as well as hunter observations during the 76 day deer archery season provide a general picture of the turkey flock. Due to the size of turkeys and their gregarious nature, flocks of turkeys are often seen by the refuge staff during normal duty operations. Areas which will be used for turkey trapping are pre-baited to draw the birds to the net site. Observations of these sites to see how many birds are using it and when they use it, give a good indication of turkey numbers and activity.

III. Special Considerations

Special attention should be given to watching the turkey flock for signs of disease. Any sick or dead birds found will be examined to determine the cause of illness or death.

IV. Manpower and Costs

Manpower and costs for this survey are as follows:

Fieldwork:	Observation & collection of data:	
	4 man-days @ \$77.92 (GS-9)	= \$311.68
Equipment:	Vehicle - pick-up truck for 4 miles @ .25/mile for 4 days	= 4.00
Materials:	Binoculars, pencil & paper	

Total Cost	\$315.68
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Refuge: Holla Bend NWR

Procedure No.: 7

Species: Mourning Dove

Title: Mourning Dove Survey

I. Purpose

Holla Bend has historically had dove hunting. In the past dove hunting was limited to a small area of the refuge where crops were manipulated to attract doves. Since this practice has been discontinued, dove numbers using the refuge have dropped accordingly. Dove hunting is now permitted on the entire refuge, and the number of doves using the refuge now depends strictly on natural conditions. There will always be a few doves present, but a survey is needed to determine if there are enough doves present for a quality hunt. If doves are present in sufficient numbers, a hunt will be announced through the media two weeks before the hunt dates.

II. Procedures

Determining whether or not there is a huntable dove population will be a judgment call arrived at by the refuge staff. Doves use refuge roads for gathering fruit. A good idea as to their general numbers on the refuge can be gathered while traveling refuge roads during normal duties. This survey will not provide actual numbers of doves but will provide a good indication as to whether there are enough doves to justify a hunt.

III. Special Considerations

None

IV. Manpower and Costs

Conducted in conjunction with normal duty activities.

Prepared by:

Cecil M. McEllan

Date:

8-23-83

Reviewed by:

Date:

Approved by:

Date:
